Nov. 7, 1944

Hi, darling--

A blowy, damp November day here, while back home you are having the excitement of election day in all kinds of weather. Even the war seems to be pausing long enough to find out what is the verdict.

The importance of the time lag between the time a man is wounded until he receives definitive surgery has become more and more recognized in recent years. Among the seriously wounded, for the first few hours there is a certain mortality for a given (Army) surgical method;- this is the mortality of the wound itself. After a few hours, 5 - 8 perhaps, the mortality begins to rise sharply and continues to mount, even though the same surgical treatment is given; this additional mortality, arising from prolonged shock, toxemia, blood loss, infection, etc., is the mortality of <u>delay</u> in treatment. It seems strange to us now that this fundamental concept and its vital implications has taken so long to be recognized.

For any comparison of the surgery of this war and the last it must be stated at once that surgical knowledge and therapeutic armamentarium have progressed to an astonishing degree in the intervening years. Much of our concepts of how to treat wounds and wounded men in war conditions are derived directly from the bitter experiences of the fine surgeons of that day. The importance of wound debridement, avoidance of primary closure, use of splinting in transportation, secondary closure, many reconstruction and plastic techniques are our direct heritage of those experiences. Impetus was given to the studies on shock, and the importance of transfusion began to be recognized. Yet certain wounds carried what today seems a monstrous mortality. There was a time when a compound femur killed 80%; when abdominal wounds killed 70-90%; when combined thoraco-abdominal injuries almost 100%. (Now perhaps, 3%, 25%, 35%). Think of the number of improved or new agents now available for the treatment of these wounded, however! This is the war of plasma, of blood, of sulfanamides, of penicillin, of endotracheal anaesthesia, of tetatunus toxoid prophylaxis, of gas serum, of plaster splinting, etc.-- It is also a war of early definitive surgery.

In the American Army this has been incorporated in its medical policy more by the force of circumstances than by conscious design. To the Spanish Republican Army's Medical Corps should go the credit of first devising a method to accomplish it, and then proving its value. The problems, policies, and methods devised are most clearly and ably described in the English surgeon Jolly's book "Front Line Surgery in Modern War." They devised the concept of bringing definitive surgery to within a certain <u>time</u> zone of the point of injury.

This varies with different types of injuries, but the important thing was the time element. They clarified the concept of the term "non-transportable" as applied to injured men; they stream-lined evacuation technique. They devised, or rather first really utilized, the auxiliary surgical team as a purposeful cog in the medical set-up. They organized a small, highly mobile, adequately equipped surgical hospital to which teams could be attached and which could constantly stay within the evacuation-time zone established as essential. (In their organization, 5 hours top limit from point of injury). They Utilized the technique of leap-frogging two or more such hospital units as a front advanced. To the medical world at large, the Spanish War is remembered as the testing ground of the principles of plaster wound splinting and later non-interference as advocated in America by Winnett Orr and practised in Spain by Trueta. To the Medical Corps of the World's powers it should have served as a text-book in army medical organization; but it would seem that their hard won concepts and solutions were overlooked.

Of course, I little know what has gone on behind the locked doors of the Surgeon General's office, or those of his theatre commanders; and no one is, as far as I know, saying much about it. I only know what I have observed while on active duty (and usually busy duty) with five different field hospitals and three evacuation hospitals; what I have read in unrestricted army publications; and what I have learned from asking questions of men I have met with varied experience. What I say, therefore, may well be erroneous, but I think, at least, the main trend of my story is an approximation of events as they occurred.

When we invaded Africa we still had the so-called Surgical Hospital of the last war. Considered to be mobile, it was designed to split in two independent sections if necessary. It's total bed capacity was, I believe, in the neighborhood of 700 beds. On this organization we relied to do our front-line surgery. We also had evacuation hospitals, 400 beds, with equipment to function in tents as a complete hospital. The policy of how much and what surgery should be done there, and how much it should serve only as a way station in the chain of evacuation (as its name implies) was not too definite. In the rear echelon, of course, were the general hospitals for convalescents and reconstructive surgery. Their set-up has little changed, and with them we are not now concerned. We also had an organization called the Field Hospital, recently (ca. 1940?) devised and organized as a small mobile hospital designed to serve as a station hospital for airfields, troop concentrations when there was no station hospital, etc. It was also thought they would be ideal for island hopping. Please note, that when organized, the field hospital was not visualized as a surgical hospital, much less as a front echelon unit. Its initial equipment and personnel were assigned accordingly.

The experience in Africa showed that the Surgical Hospital was unsatisfactory. It was too big and unwieldy; its units could not function

well when separated; its personnel was hard pressed when work was heavy. An evacuation hospital there functioned as such, but did not have enough volume to establish its best purpose. A Field Hospital there functioned as designed,- as a station hospital; Auxiliary teams were first used, but confusion as to their status and responsibilities, and conflicts of personalities, led to distrust in their value or effectiveness.

The invasion of Sicily was rapidly organized and accomplished. Its lessons were essentially the same as those of Africa. Between Sicily and Italy a change in policy had to be accomplished. Someone conceived of using Aux. Surg. teams in a Field Hospital, converting it to a surgical hospital, and using it to supplement an evacuation hospital, on whose shoulders now fell the burden of front-line surgery. I have not talked to the men who were involved in this experiment, but I have enough experience to appreciate their constant struggles and problems, their fights for equipment and supplies, for clarification of treatment and evacuation policies, their constant experimenting to solve the technical problems of mobility, supply, and most effective set-up of equipment. In Italy, I believe, was the testing ground of the F.H. and the E.H. and gradually there evolved a theory or policy in regards to their use. A solution was evolved in the field with instruments not originally designed for the purpose. The value of Aux. Surgical teams, (and, for a while, it was seriously considered whether or not they should be disbanded entirely) was shown without question, and even grudgingly admitted by the regular army.

By the time of the invasion of Normandie, the role of the F.H. had been evolved. In the Pacific, in the Aleutians, they were in service as station hospitals. In the battle of France and Germany they were to be the unit designated to do the front-line "non-transportable" surgery, they with their attached surgical teams. Assigned to accompany the clearing companies, platoons (each F.H. has three platoons) leap-frogging each other, with their 100 bed capacity, were to constantly provide the wounded with early definitive treatment. The evacuation time to them should average in the neighborhood of two hours. (The best gauge of the conscientious effectiveness of a clearing company is the rapidity and smoothness of its evacuation). The Evac. Hospitals, five to fifteen miles further back, were to furnish the early definitive surgery of "transportables", and of those"non-transportables" which are sent direct to them when a F.H. is not available or under certain evacuation conditions. Here were to be the first specialists: Neurosurgeons, thoracic surgeons, maxilo-facial teams. With the Evacs. go many Aux. surg. teams. They are designed to handle volume. They were to overflow to convalescent hospitals, General Hosps. in the C.Z., in the U.K., in the U.S.A., depending on the expected length of convalescence. This was the plan, and, as it turned out, was actually the way it worked in the main.

Thus, we see that after learning the hard way and evolving units in the field to purposes for which they were not designed, we arrived at the exact replica of the medical set-up so arduously and thoughtfully worked out by the Republican Army in Spain. Only the names of the units are different. If we could have only entered the war with units planned to be used, staffed and equipped, as they actually are used! So many of our problems might have been avoided.

This critique, then, is aimed not against the treatment policies of our army, for I believe them to be excellent, nor their evacuation policies, but is a statement of opinion on how one unit, the Field Hospital, could be better organized and equipped to do its job. To repeat, most of these remarks stem from the fact it was not intended to do this job to begin with. For example, each platoon has a dental officer. He rarely sees a tooth, but may become expert with a plasma needle or as supply, transportation, X-Ray, general jack-of-all-trades. Because of the frequent moves and peaks of work (both of which usually occur simultaneously) the enlisted personnel is occasionally taxed to the limit of endurance. There should be about a 20% increase in enlisted personnel. Because of this need for mobility, a field hospital should have adequate motor equipment to be able to move itself, or, at the very best, enough to move one of its platoons. Now it has to seek and borrow transportation. This is often time wasting and fuel extravagant; a burden on the donor; and occasionally, when the line is falling back, a potential cause of capture because of inability to move. (This point was emphasized by Jolly). (From one experience, I quite agree). As to officer personnel, I think the number now used is adequate,- 6; four should be doctors, two, administrative officers. The nursing personnel is now rock-bottom. Six at a minimum; preferably eight. The unit should remain army, attached to corps or division as a mission, but control direct from Army. It should rate a priority standing on medical supplies, especially more expendible ones. It should have a standing as a combat unit (i.e. on supplies & equipment issued only to combat troops). I think its bed capacity per unit is just about right - 100. It is a plucky, hard-working, vigorous little outfit; it has a vital and difficult, often dangerous, mission; it deserves a break.

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I lov e you so.

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